

Summary of FY 2012 Actuarial Valuations

Compiled by Sheri Scurr, LSD, from TRS Board and PER Board FY 2012 Actuarial Valuations

SENATE State Admin

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EXHIBIT No.

Date

1-11-13

n/a

System	Funded Ratio (percentage)	Covered Payroll	ARC Shortfall (% payroll)	ARC Shortfall (as dollar amt on 6/30/12)	Amortization period (years)
TRS	59.24%	\$ 735,600,000	4.89%	\$ 35,970,840	does not amortize
PERS-DB	67.60%	\$ 1,081,288,177	6.53%	\$ 70,575,679	does not amortize
SRS	74.30%	\$ 59,582,678	5.85%	\$ 3,485,587	does not amortize
GWPORS	75.80%	\$ 38,316,733	3.64%	\$ 1,394,729	does not amortize
HPORS	58.00%	\$ 13,513,915	5.78%	\$ 781,104	49.7
MPORS	55.00%	\$ 41,584,304	0.00%	\$ -	25.7
FURS	61.80%	\$ 35,849,518	0.00%	\$ -	16.4
JRS	137.00%	\$ 6,192,316	0.00%	\$ -	0
TOTAL				\$ 112,207,939	

Notes:

- Funded ratio** means the actuarial value of a system's assets compared to the actuarial value of the system's liabilities. Liabilities consist of two parts, (1) liabilities that relate to the normal cost of benefits as they are expected to accrue, and (2) the liabilities that are created when experience is different than expected.
- The **normal cost** of benefits is an actuary's best guess about what currently accruing benefits will cost when they are paid in the future.
- Liabilities consist of both funded and unfunded liabilities. Funded liabilities are those liabilities that can be paid with current assets. **Unfunded liabilities** are the portion of a system's total liabilities that are not covered by current assets.
- Unfunded liabilities may be paid off in time as system assets (contributions and investment earnings) continue to accrue. The period of time it will take to pay off the unfunded liabilities is called the **amortization period**. When the unfunded liabilities are completely paid off, the funded ratio of the system will be 100%. However, unfunded liabilities fluctuate because assumptions about the future will always deviate from actual experience and investment earnings (and therefore system assets) vary day by day and year by year. Thus, the funded ratio of a system will also fluctuate day by day and year by year.
- ARC** means the Annual Required Contribution rate necessary to fund both the normal cost of benefits as they accrue AND amortize the unfunded liabilities over 30 years, which is the commonly accepted norm for **actuarial soundness**. If a system's liabilities cannot be paid off within 30 years, the system is considered actuarially unsound. The full ARC is not shown in this table.
- The **ARC shortfall** that is shown in this summary table is the total additional contribution needed to amortize the system's unfunded liabilities in 30 years. The ARC shortfall as a dollar amount is the amount of money required in the first year of the biennial budget in addition to current contributions, using June 30, 2012, covered payroll figures.
- Under Montana's Constitution, the retirement boards are responsible for actuarial determinations. The boards hire actuaries who set **actuarial assumptions** based on extensive studies of historical data sometimes going back 60 or more years to determine the most likely experience for the retirement system in the future. These assumptions are tested and supported by experts in the field.
- Significant changes in funding or benefits enacted by the legislature will affect actuarial projections. When system actuaries "crunch the numbers" based on the specific provisions of the bill, the fiscal note will generally identify how the bill is expected to affect the system's assets and liabilities and thus, the system's funded ratio and amortization period.

Table 1 – CONTRIBUTIONS, COSTS, AND AMORTIZATION PERIOD

SYSTEM Year enacted	TEACHERS' RETIREMENT SYSTEM (TRS) 1937	PERS DEFINED BENEFIT PLAN (PERS-DBRP) 1945	JUDGES (JRS) 1967	HIGHWAY PATROL OFFICERS' (HPORS) 1945	SHERIFFS' (SRS) 1974	GAME WARDENS' AND PEACE OFFICERS' (GWPORS) 1963	MUNICIPAL POLICE OFFICERS (MPORS) 1974	FIREFIGHTERS' UNIFIED (FURS) 1981
Employer contributions as percentage of payroll	School Districts: 7.47% State agencies & University System: 9.85% State General Fund: 2.49%	7.17% School Districts: 6.8% State: 0.37% Local Government 7.07% State: 0.1%	25.81%	26.15%	10.115%	9.00%	14.41%	14.36%
Employee contributions as percentage of salary	7.15%	Pre- 7/1/2011 6.90% 7/1/2011 7.90%	7%	Pre-7/1/97 not electing GABA 9% 7/1/97 or electing GABA 9.05%	9.245%	10.56%	Non-GABA Pre-7/1/79 7.0% Pre-7/1/97 8.5% With GABA 9%	Pre-7/1/97 not electing GABA 9.5% 7/1/97 or electing GABA 10.7%
Funding from other sources as a percentage of payroll	University System 4.72% of ORP payroll	None	None	State General Fund 10.18%	None	None	State General Fund 29.37%	State General Fund 32.61%
Total statutory contributions as percentage of payroll	17.11%	14.143% (0.04% transferred to education)	32.81%	45.38%	19.36%	19.56%	52.78%	57.66%
Normal costs as percentage of payroll	9.65%	11.80%	23.80%	23.60%	18.73%	18.98%	26.26%	26.50%
Percentage used to fund unfunded liabilities	7.46%	2.34%	9.01%	21.78%	0.63%	0.58%	26.52%	31.16%
Years to amortize unfunded liability	Does not amortize	Does not amortize	(30 yrs) (surplus)	49.7 yrs	Does not amortize	Does not amortize	25.7 yrs	16.4 yrs

Table 2 – ACTUARIAL DATA

SYSTEM Year enacted	TEACHERS' RETIREMENT SYSTEM (TRS) 1937	PERS DEFINED BENEFIT PLAN (PERS-DBRP) 1945	JUDGES (JRS) 1967	HIGHWAY PATROL OFFICERS' (HPORS) 1945	SHERIFFS' (SRS) 1974	GAME WARDENS' AND PEACE OFFICERS' (GWPORS) 1963	MUNICIPAL POLICE OFFICERS (MPORS) 1974	FIREFIGHTERS' UNIFIED (FURS) 1981
Actuarial Value Funded ratio	59.24%	67.6%	136.8%	57.6%	74.3%	75.8%	54.8%	61.8%
Actuarial value of assets	\$2.85 billion	\$3.8 billion	\$63 million	\$97 million	\$212 million	\$98 million	\$234 million	\$233 million
Actuarial liability	\$4.81 billion	\$5.6 billion	\$46 million	\$168 million	\$285 million	\$129 million	\$427 million	\$377 million
Unfunded portion of accrued actuarial liability	\$1.96 billion	\$1.8 billion	(\$17 million)	\$71 million	\$73 million	\$31 million	\$193 million	\$144 million
Projected ARC shortfall (surplus)	4.89%	6.53%	(23.59%)	5.78%	5.85%	3.64%	(\$2.32%)	(\$10.18%)
Projected ARC shortfall (surplus) as annual dollar amount - 2012	\$35,970,840	\$70,608,118	\$0	\$787,100	\$3,485,587	\$1,394,729	\$0	\$0

Montana's Public Employees' Retirement Plans: Summary Tables
(Source: June 30, 2012, Actuarial Valuation)

Table 3 - BENEFIT ELIGIBILITY AND BASIC FORMULA
(multiplier x highest avg compensation x years of service)

SYSTEM Year enacted	TEACHERS' RETIREMENT SYSTEM (TRS) 1937	PERS DEFINED BENEFIT PLAN (PERS-DB) 1945	JUDGES (JRS) 1967	HIGHWAY PATROL OFFICERS' (HPORS) 1945	SHERIFFS' (SRS) 1974	GAME WARDENS' AND PEACE OFFICERS' (GWPORS) 1963	MUNICIPAL POLICE OFFICERS' (MPORS) 1974	FIREFIGHTERS' UNIFIED (FURS) 1981
Service and Age eligibility criteria for full retirement	25 yrs, any age or 5 yrs, age 60	Pre-July 1, 2011 30 years of service, any age or 5 years service, age 60 or any service, age 65 July 1, 2011 5 yrs, age 65 or age 70, any yrs	5 yrs, age 60	20 yrs, any age	20 yrs, any age	20 yrs, age 50 or 5 yrs, age 55	20 yrs, any age or 5 yrs, age 50	20 yrs, any age or 5 yrs, age 50
Minimum service for vesting	5 yrs	5 yrs	5 yrs	5 yrs	5 yrs	5 yrs	5 yrs	5 yrs
Highest average compensation period used in benefit calculation	3 yrs	Pre-July 1, 2011 3 yrs July 1, 2011 5 yrs	3 yrs	3 yrs	Pre-July 1, 2011 3 yrs July 1, 2011 5 yrs	Pre-July 1, 2011 3 yrs July 1, 2011 5 yrs	3 yrs	3 yrs
Service retirement benefit multiplier	1.67% per yr	Pre-July 1, 2011 Less than 25 yrs service: 1.78571% 25 yrs service or more: 2% July 1, 2011 up to 10 yrs service: 1.5% 10 yrs less than 30 yrs: 1.785% 30 yrs or more: 2% Money Purchase Option The greater of the above or 2X member's accumulated contributions	3.33% to 15 yrs plus 1.785% x yrs of service greater than 15	2.5% per yr	2.5% per yr	2.5% per yr	2.5% per yr	2.5% per yr
Social Security coverage	Yes (most members)	Yes (most members)	Yes	No	Yes	Yes	No	No

Montana's Public Employees' Retirement Plans: Summary Tables (Source: FY 2012, Actuarial Valuations)

Table 4 – ACTIVE MEMBERSHIP

SYSTEM Year enacted	TEACHERS' RETIREMENT SYSTEM (TRS) 1937	PERS DEFINED BENEFIT PLAN (PERS-DBRP) 1945	JUDGES (JRS) 1967	HIGHWAY PATROL OFFICERS' (HPORS) 1945	SHERIFFS' (SRS) 1974	GAME WARDENS' AND PEACE OFFICERS' (GWPORS) 1963	MUNICIPAL POLICE OFFICERS (MPORS) 1974	FIREFIGHTER S' UNIFIED (FURS) 1981
Total active members	18,372	28,548	54	218	1,241	972	736	590
Average age	46.0 yrs	48.9 yrs	60.2 yrs	41.7 yrs	40.6 yrs	41.9 yrs	38.8 yrs	39.4 yrs
Average years of service	12.4 yrs	9.9 yrs	12.4 yrs	11.2 yrs	7.2 yrs	7.1 yrs	9.0 yrs	10.6 yrs
Average annual salary – Full time members	\$50,987	\$38,446	\$114,673	\$62,860	\$48,186	\$40,421	\$56,700	\$61,780
Number of participating employers	368	538	1	1	57	7	31	24
Employers' covered payroll (2012 valuation)	\$735.6 million	\$1.1 billion	\$6.2 million	\$13.6 million	\$59.5 million	\$38.3 million	\$41.7 million	\$33.1 million

Montana's Public Employees' Retirement Plans: Summary Tables
(Source: June 30, 2012, Actuarial Valuations)

Table 5 – RETIREE AND BENEFIT RECIPIENT DATA

SYSTEM Year enacted	TEACHERS' RETIREMENT SYSTEM (TRS) 1937	PERS DEFINED BENEFIT PLAN (PERS-DBRP) 1945	JUDGES (JRS) 1967	HIGHWAY PATROL OFFICERS' (HPORS) 1945	SHERIFFS' (SRS) 1974	GAME WARDENS' AND PEACE OFFICERS' (GWPORS) 1963	MUNICIPAL POLICE OFFICERS (MPORS) 1974	FIREFIGHTERS' UNIFIED (FURS) 1981
Number of benefit recipients	13,363	18,148	54	280	415	153	634	543
Number of beneficiaries recipients		390	2	16	21	8	29	21
Average age of current retirees	70.2 years	71.9 years	75.7 years	69.7 years	64.2 years	68.2 years	66.7 years	68.1 years
Average age at retirement	57.9 years	59.3 years	61.6 years	49.3 years	52.9 years	55.8 years	47.5 years	50.6 years
Average years of service at retirement	25.5 years	19.8 years	15.7 years	24.2 years	20.0 years	21.2 years	19.7 years	24.3 years
Average monthly benefit (service retirement)	\$1,715	\$1,159	\$3,509	\$2,283	\$1,957	\$1,767	\$2,169	\$2,517
Post-retirement benefit adjustment (GABA)	1.5% 3 year waiting period	If hired before 07/01/07 3.0% GABA (after 1 year) If hired on or after 07/01/07 1.5% GABA (after 1 year)	Pre-7/1/97 Benefits increased same as salary of sitting judge All post-7/1/97 or who elected GABA 3.0% GABA (after 1 year)	Pre-7/1/97 not electing GABA 2% of base salary of probationary officer All post-7/1/97 or who elected GABA 3.0% GABA (after 1 year)	If hired before 07/01/07 3.0% GABA (after 1 year) If hired on or after 07/01/07 1.5% GABA (after 1 year)	If hired before 07/01/07 3.0% GABA (after 1 year) If hired on or after 07/01/07 1.5% GABA (after 1 year)	Pre-7/1/97 not electing GABA 1/2 of monthly salary of new officer All post-7/1/97 or who elected GABA 3.0% GABA (after 1 year)	Pre-7/1/97 not electing GABA 1/2 of monthly salary of new firefighter All post-7/1/97 or who elected GABA 3.0% GABA (after 1 year)

Montana's Public Employees' Retirement Plans: Summary Tables - (Source: June 30, 2012, Actuarial Valuations)

Table 6 – INVESTMENT DATA

SYSTEM Year enacted	TEACHERS' RETIREMENT SYSTEM (TRS) 1937	PERS DEFINED BENEFIT PLAN (PERS-DBRP) 1945	JUDGES (JRS) 1967	HIGHWAY PATROL OFFICERS' (HPORS) 1945	SHERIFFS' (SRS) 1974	GAME WARDENS' AND PEACE OFFICERS' (GWPORS) 1963	MUNICIPAL POLICE OFFICERS (MPORS) 1974	FIREFIGHTERS' UNIFIED (FURS) 1981
Amount invested (market value on 6/30/12)	\$2.93 billion	\$3.9 billion	\$64.8 million	\$99.3 million	\$216.7 million	\$99.6 million	\$238.6 million	\$237.7 million
Market rate of return for composite index FY2012	3.48%	3.51%	3.49%	3.51%	3.50%	3.51%	3.52%	3.65%
Market rate of return on the fund in 2012 all assets	2.42%	2.41%	2.40%	2.40%	2.40%	2.41%	2.38%	2.38%
Market rate of return for composite index, 5 year period	1.52%	1.52%	1.56%	1.54%	1.56%	1.55%	1.48%	1.54%
Rate of return on the fund, 5 year period	1.22%	1.22%	1.24%	1.22%	1.22%	1.22%	1.15%	1.20%
Percentage growth in total liabilities between 2011 valuation and 2012 valuation	3.20%	4.60%	6.40%	7.80%	6.80%	7.50%	6.40%	6.20%
Percentage change in total assets between 2011 and 2012	-0.50%	(0.5%)	1.7%	0.4%	2.3%	5.7%	4.2%	4.5%

Montana's Public Employees' Retirement Plans: Summary Tables
(Source: June 30, 2012, Actuarial Valuation)

Table 7 – VOLUNTEER FIREFIGHTER'S COMPENSATION ACT

Minimum service and age for normal (unreduced) retirement	Age 55 and 20 years of service; or age 60 and 10 years of service
Vested	10 Years
Basic benefit formula	\$7.50 per year of service, up to maximum of \$225 per month. Members that retire on or after 7/1/2011 can increase their benefit for over 30 years of service if the system is funded in 20 years or less.
Disability	\$7.50 per year of service, with a minimum of \$75 per month and with the same maximum as a regular retirement benefit. The benefit can increase for over 30 years of service if the system is funded in 20 years or less.
Earning Limitations	Yes - earnings from gainful employment exceed \$5,500 in the previous year. Benefit reinstated if earnings less than \$5,500.
Death Benefit	\$7.50 per year of service (maximum of 40 months including any amounts retiree received).
Membership	1,242 retirees and beneficiaries 2,106 active members 879 vested inactive (terminated) members 4,227 total members
Average age of active members	44.7 years old
Average years of service of active members	9.4 years
Average benefit for service retiree	\$139.25 per month
Contributions	5% of insurance premium taxes collected (See Section 19-17-301, MCA)
Actuarial Liabilities	\$36.1 million
Actuarial value of assets	\$26.5 million
Unfunded liability	\$9.6 million
Years to Amortize	9.3 years
Funded ratio	73.4%

Montana's Public Employees' Retirement Plans: Summary Tables
(Source: 2011 Montana Code Annotated)

Table 8 – PERS-DEFINED CONTRIBUTION RETIREMENT PLAN (DC)

Membership	New members have 12 months to make a one-time, irrevocable choice between the DB and DC plans
Active membership	2,023 – 6% of total active members of PERS
Employee Contributions	Pre July 1, 2011 6.9% of salary July 1, 2011 7.9% of salary
Employer Contributions	7.17% of salary Allocated as follows: -- 0.04% to an educational fund -- 2.37% to PERS DB plan as plan choice rate -- 4.19% to member accounts -- 0.3% to disability trust fund -- 0.27% to the DB plan to reduce the plan choice rate unfunded actuarial liability; then to the long-term disability plan trust fund once the PCR UAL is retired.
Total contributions to member accounts	11.09% of salary
Investment Choices	17 funds
Vesting	5 years for employer contributions and investment earnings
Benefits	Contributions plus investment earnings, minus administrative expenses; payable at any time after termination, with a possible federal tax penalty for withdrawal before age 59½.
Disability Benefit	A defined disability benefit based on a $1/56 \times \text{HAC} \times \text{years of service}$ formula, similar to what is provided in the PERS-DBRP.
Death/survivorship benefit	Member's account balance
Plan Administration	- PERB is the plan's board of trustees - Great-West Retirement Services is the plan's record keeper

Montana's Public Employees' Retirement Plans: Summary Tables
(Source: 2011 Montana Code Annotated)

Table 9 – Deferred Compensation Plan (457)

Membership	Voluntary supplemental retirement savings plan available to all employees of the State, Montana University System, and contracting political subdivisions.
Active Membership	8,156 members
Employee Contributions	Voluntary, tax deferred within IRC limits
Employer Contributions	None, unless a term in the employer contract
Investment Choices	17 Funds
Vesting	Participants are fully vested in their accounts immediately
Benefit Eligibility	Not available to participant until separation from service, retirement, death, or upon an unforeseeable emergency, while still employed, provided IRS-specified criteria are met.
Benefit Amount	Lump sum or periodic benefit payment, at the option of the participant. Based on individual account balance and plan provisions. IRS permitted rollovers are also possible.
Death/survivorship Benefit	Member's account balance
Plan Administration	<ul style="list-style-type: none">- PERB is the plan's board of trustees- Great-West Retirement Services is the plan's record keeper.

Montana's Public Employees' Retirement Plans: Summary Tables
(Source: June 30, 2012, Actuarial Valuation)

Table 10 – UNIVERSITY SYSTEM OPTIONAL RETIREMENT PROGRAM – TRS ELIGIBLE MEMBERS

Membership	All administrative, scientific, and instructional staff of the University System that would otherwise be eligible for membership in TRS. Active membership: X,XXX
Retirement eligibility	A plan member may "retire" (i.e., access the ORP account) any time after service is terminated. There are federal tax penalties for withdrawal prior to age 59½.
Benefit	An ORP member's benefit depends on total contributions to the member's individual account, plus investment earnings, minus administrative expenses. The ORP is administered by TIAA-CREF.
Disability benefits	All University System employees are covered under a long-term disability insurance plan. The basic plan is entirely employer-paid and provides disability payments up to 60% of monthly earnings, offset against other income, such as pension benefits, social security, workers' compensation insurance, etc.
Death and survivor benefits	The full account value in member's annuity account is payable to the beneficiary. The benefit can be paid in a single sum, as an annuity to the beneficiary for life, or as an annuity for a fixed period of years. The annuity may also be deferred as federal law permits.
Total ORP payroll covered	\$173.8 million
Employer contribution as a percentage of payroll	5.956%
Employee contribution as a percentage of salary	7.044%
Total contributions to member accounts	13.0%
Supplemental employer contributions to TRS for unfunded liability. Rate is subject to periodic review and adjustment to maintain amortization schedule.	4.503% 7/1/1989 through 6/30/1993 2.503% 7/1/1993 through 6/30/1998 2.810% 7/1/1997 through 6/30/1998 3.120% 7/1/1998 through 6/30/1999 3.420% 7/1/1999 through 6/30/2000 3.730% 7/1/2000 through 6/30/2001 4.040% 7/1/2001 through 6/30/2007 4.720% 7/1/2007 through 7/01/2033

Montana's Public Employees' Retirement Plans: Summary Tables
(Source: 2011 Montana Code Annotated)

Table 11 – UNIVERSITY SYSTEM OPTIONAL RETIREMENT PROGRAM – PERS ELIGIBLE MEMBERS

Membership	<p>New members who are employed by the Montana university system in positions covered by PERS have 12 months to make a one-time, irrevocable choice between the PERS DB or DC plans, or the university system's optional retirement plan.</p> <p>Active membership: 876</p>	
Retirement eligibility	<p>A plan member may "retire" (i.e., access the ORP account) any time after service is terminated. There are federal tax penalties for withdrawal prior to age 59½.</p>	
Benefit	<p>An ORP member's benefit depends on total contributions to the member's individual account, plus investment earnings, minus administrative expenses. The ORP is administered by TIAA-CREF.</p>	
Disability benefits	<p>All University System employees are covered under a long-term disability insurance plan. The basic plan is entirely employer-paid and provides disability payments up to 60% of monthly earnings, offset against other income, such as pension benefits, social security, workers' compensation insurance, etc.</p>	
Death and survivor benefits	<p>The full account value in member's annuity account is payable to the beneficiary. The benefit can be paid in a single sum, as an annuity to the beneficiary for life, or as an annuity for a fixed period of years. The annuity may also be deferred as federal law permits.</p>	
Total ORP payroll covered	\$16,303,346	
Employer Contributions	<p>7.17% of salary</p> <p>Allocated as follows:</p> <ul style="list-style-type: none"> -- 0.04% to an educational fund -- 2.37% to PERS DB plan as plan choice rate -- 4.19% to member accounts -- 0.3% to disability trust fund -- 0.27% to the DB plan to reduce the plan choice rate unfunded actuarial liability; then to the long-term disability plan trust fund once the PCR UAL is retired. 	
Employee contribution as a percentage of salary	<p>Pre July 1, 2011</p> <p>July 1, 2011</p>	<p>6.9% of salary</p> <p>7.9% of salary</p>
Total contributions to member accounts	11.09% of salary	